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ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GR--ETC F/G 6/20
TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT--ETC(U)
JUN 79 A W SINGER

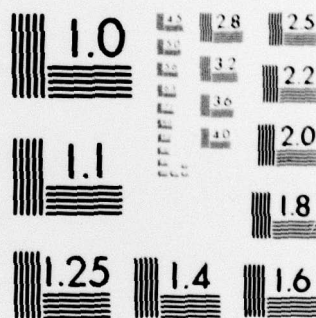
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**UNITED STATES ARMY
ENVIRONMENTAL HYGIENE
AGENCY**

ABERDEEN PROVING GROUND, MD 21010

6 TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENTS
AI3-37134a AND AI3-37139a
U.S. DEPARTMENT OF AGRICULTURE PROPRIETARY COMPOUNDS
STUDY NUMBERS 75-51-0086-79 AND 75-51-0090-79
FEBRUARY 1978 - JUNE 1979.

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER 75-51-0086-79 and 75-51-0090-79	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Topical Hazard Evaluation Program of Candidate Insect Repellents AI3-37134a and AI3- 37139a, US Department of Agriculture Proprietary Compounds, Study Nos. 75-51-0086-79 and 75-51-0090- 79, February 1978 - June 1979		5. TYPE OF REPORT & PERIOD COVERED Final, Feb 78 - Jun 79
7. AUTHOR(s) ALLEN W. SINGER, CPT, VC		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS US Army Environmental Hygiene Agency Aberdeen Proving Ground, MD 21010		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Commander US Army Health Services Command Fort Sam Houston, TX 78234		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE Feb 78 - Jun 79
		13. NUMBER OF PAGES 4
		15. SECURITY CLASS. (of this report) Unclassified
		16a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Topical Hazard Evaluation skin irritation USDA Proprietary Compound eye irritation AI3-37134a candidate repellent AI3-37139a		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) * Preliminary hazard evaluations of AI3-37134a and AI3-37139a were performed by means of laboratory animal studies using New Zealand White rabbits. The technical grade compounds produced mild primary irritation of the skin of rabbits, and moderate injury to the cornea and conjunctiva of all rabbits tested.		

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U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010

CPT Singer/jg/AUTOVON
584-3980

HSE-LT-T/WP

17 AUG 1979

SUBJECT: Topical Hazard Evaluation Program of Candidate Insect Repellents
AI3-37134a and AI3-37139a, US Department of Agriculture Proprietary
Compounds, Study Nos. 75-51-0086-79 and 75-51-0090-79, February
1978 - June 1979

Executive Secretary
Armed Forces Pest Control Board
Forest Glen Section, WRAMC
Washington, DC 20012

A summary of the pertinent findings and recommendations of the inclosed
report follows:

Preliminary hazard evaluations of AI3-37134a and AI3-37139a were performed by
means of laboratory animal studies using New Zealand White rabbits. The
technical grade compounds produced mild primary irritation of the skin of
rabbits, and moderate injury to the cornea and conjunctiva of all rabbits
tested. It was recommended that AI3-37134a and AI3-37139a not be approved
for further testing as candidate insect repellents. If, however, these
compounds show a significant improvement in pest repellent properties over
currently available compounds, it is suggested that they be purified if
possible and resubmitted or considered only as clothing impregnants.

FOR THE COMMANDER:

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DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010

TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENTS
AI3-37134a AND AI3-37139a
US DEPARTMENT OF AGRICULTURE PROPRIETARY COMPOUNDS
STUDY NUMBERS 75-51-0086-79 AND 75-51-0090-79
FEBRUARY 1978 - JUNE 1979

1. AUTHORITY.

a. Letter, US Department of Agriculture - Agricultural Research Service, Southern Region, Insects Affecting Man Research Laboratory, Gainesville, Florida, 9 February 1978.

b. Memorandum of Understanding between the Department of the Army, Office of The Surgeon General; the US Army Health Services Command; the US Army Environmental Hygiene Agency; the Armed Forces Pest Control Board, and the US Department of Agriculture, effective 1970 with Amendment No. 1 effective August 1974.

2. REFERENCE. Toxicology Division Procedural Guide, USAEHA, 1972, revised 1976.

3. PURPOSE. The purpose of this program is to provide guidance for further entomological testing of the candidate insect repellents AI3-37134a and AI3-37139a.

4. SUMMARY OF FINDINGS. Hazard evaluations of the candidate repellents AI3-37134a and AI3-37139a, USDA proprietary compounds, were conducted by this Agency using New Zealand White rabbits for skin and eye studies. A tabular presentation of animal toxicity data developed in this Agency follows:*†

* In conducting the studies described in this report, the investigators adhered to the "Guide for the Care and Use of Laboratory Animals," US Department of Health, Education, and Welfare Publication No. (NIH) 74-23, revised 1972 - second printing 1974.

† The experiments reported herein were performed in animal facilities fully accredited by the American Association for the Accreditation of Laboratory Animal Care.

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TABULAR PRESENTATION OF DATA

Test	Results	Interpretation
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SKIN IRRITATION STUDIES

Rabbits

Single 24-hour application to intact and abraded skin of New Zealand White rabbits.	Compounds AI3-37134a and AI3-37139a produced mild primary irritation of the intact skin and the skin surrounding an abrasion.	USAEHA Category II (ref Appendix)
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0.5 ml technical grade compound applied to each of six rabbits.

EYE IRRITATION STUDIES

Rabbits

Single 24-hour application of 0.1 ml technical grade compound to one eye of each of six New Zealand White rabbits.	Compounds AI3-37134a and AI3-37139a produced moderate irritation to the cornea and conjunctiva of all six rabbits. There were no detectable lesions after 7 days.	USAEHA Category E (ref Appendix)
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5. CONCLUSION. Technical grade compounds AI3-37134a and AI3-37139a produced mild primary irritation of the intact and abraded skin of rabbits, and moderate corneal and conjunctival irritation of all rabbits tested. As such, these compounds do not qualify as nonhazardous insect repellents.

6. RECOMMENDATIONS. Under the provisions of the Memorandum of Understanding (paragraph 1b), it is recommended that AI3-37134a and AI3-37139a, USDA proprietary compounds, not be approved for further testing as candidate

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insect repellents. If, however, these compounds show a significant improvement in pest repellent properties over existing repellents, it is suggested that they be purified through activated charcoal and resubmitted, or, if this is not feasible, that they be considered only for use as clothing impregnants.

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TOPICAL HAZARD EVALUATION PROGRAM
DEFINITIONS OF CATEGORIES OF COMPOUNDS BEING
CONSIDERED FOR ACUTE SKIN APPLICATION

CATEGORY I - Compounds producing no primary irritation of the intact skin or no greater than mild primary irritation of the skin surrounding an abrasion. (INTERPRETATION: No restriction for acute application to the human skin.)

CATEGORY II - Compounds producing mild primary irritation of the intact skin and the skin surrounding an abrasion. (INTERPRETATION: Should be used only on human skin found by examination to have no abrasions or may be used as a clothing impregnant.)

CATEGORY III - Compounds producing moderate primary irritation of the intact skin and the skin surrounding an abrasion. (INTERPRETATION: Should not be used directly on the skin without a prophetic patch test having been conducted on humans to determine irritation potential to human skin. May be used without patch testing, with extreme caution, as clothing impregnants. Compound should be resubmitted in the form and at the intended use concentration so that its irritation potential can be reexamined using other test techniques on animals.)

CATEGORY IV - Compounds producing moderate to severe primary irritation of the intact skin and of the skin surrounding an abrasion and, in addition, producing necrosis, vesiculation, and/or eschars. (INTERPRETATION: Should be resubmitted for testing in the form and at the intended use concentration. Upon resubmission, its irritation potential will be reexamined using other test techniques on animals, prior to possible prophetic patch testing in humans, at concentrations which have been shown not to produce primary irritation in animals.)

CATEGORY V - Compounds impossible to classify because of staining of the skin or other masking effects owing to physical properties of the compound. (INTERPRETATION: Not suitable for use on humans.)

EYE CATEGORIES:

A. Compounds noninjurious to the eye. INTERPRETATION: Irritation of human eyes is not expected if the compound should accidentally get into the eyes, provided it is washed out as soon as possible.

B. Compounds producing mild injury to the cornea. INTERPRETATION: Should be used with caution around the eyes.

C. Compounds producing mild injury to the cornea, and in addition some injury to the conjunctiva. INTERPRETATION: Should be used with caution around the eyes and mucosa.

D. Compounds producing moderate injury to the cornea. INTERPRETATION: Should be used with extreme caution around the eyes.

E. Compounds producing moderate injury to the cornea, and in addition producing some injury to the conjunctiva. INTERPRETATION: Should be used with extreme caution around the eyes and mucosa.

F. Compounds producing severe injury to the cornea and to the conjunctiva. INTERPRETATION: Should be used with extreme caution. It is recommended that use be restricted to areas other than the face.